**Justifying properties of substances (Level 2) examiners tips: Read these please!**

• be very familiar with the different types of substances

spend time familiarising yourself with the type of particle and attractive force in the different types of

substances ...then logically, the properties will fit into place and make sense to you

• for Excellence, you must state that ionic, metallic and covalent network are **3D** structures

• to achieve with either Merit or Excellence you must be specific

*eg "strong covalent bonds between carbon atoms" as opposed to just "carbons"*

*eg. "strong ionic bonds between sodium cations and chloride anions" as opposed to just "sodium and*

*chlorides"*

*eg if referring to substances dissolving in water, be specific state "water molecules" not just water or*

*molecules  
 eg ice melts because weak intermolecular forces are broken between water molecules*

*eg usually electrons carry an electrical charge, if discussing ionic substances, ions carry the electrical*

*charge*

*eg. metals are malleable because the bonds in metals are non-directional*

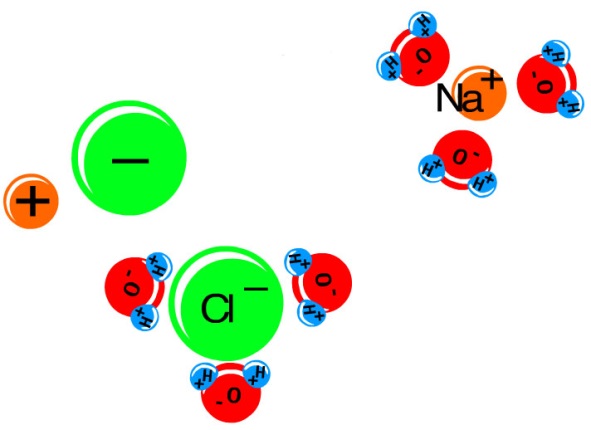
*eg. ionic substances are NOT polar but are made up of positive (cation) and negative (anion) charges*

• to achieve with E you must discuss fully by linking the particle and type of force with the specific

property

• silica/silicon dioxide/SiO2 is a covalent network substance and made up of 1 Si atom for every 2 O atoms

• click on the image below for an excellent animation of NaCl dissolving in water

[](http://chemicalminds.wikispaces.com/file/view/NaCldissolvingH2O.swf)

**Also…”don’t be daft”**

a covalent bond is a strong INTRAmolecular force between atoms INSIDE a molecule

there is a weak INTERmolecular force which is BETWEEN different molecules

an ionic substance is NEVER EVER described as being molecular nor polar  
malleable: how a substance (usually a metal) can be BENT without snapping or breaking

ductile is a term used to describe STRETCHING a substance (usually a metal) into wires

there are NO C atoms in silica/silicon dioxide/SiO2

do NOT use a MEANINGLESS phrase… "like dissolves like" or "conductivity due to charged particles"

refer to WATER MOLECULES not just water nor molecules

do not use BULLET points, you must discuss your answer in full sentences

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